

# Impact of Thane cyclone on Public health in Cuddalore- A Study

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**Abstract:**

This article is an attempt to understand the Thane cyclone impact on public health in Cuddalore. And criticizes about the health is primary concern for human being it's one of the basic factors affect by cyclone. Cyclone Thane was the Very Severe cyclonic storm in the recorded history of the Bay of Bengal in 2011. It landed between in the Pondicherry and Cuddalore on 30th December, 2011, causing 39 deaths, destroying approximately 10,000 fishing boats moved, most at risk of acquiring waterborne diseases. This short article aims to explain how the resulting of cyclone affected the public health system and the response by the government and partner organizations. The public health system consisted of social mobilization campaigns for prevention, establishment of treatment centers and units, coordination to improve of water, sanitation and hygiene, and surveillance. People were immunized in the area affected by cyclone thane. Cyclone is a natural phenomenon, towards the problem of climate change. The Government need to prepare effective, proven response plans to combat outbreaks of waterborne diseases due to cyclones.

**Key words:** Cyclone, Health, Government, Rehabilitation, Disease, Natural, People and Prevention.

**Introduction**

Cyclone is the natural disaster which affects human lives, health, livestock, agricultural produce, economic produce, and infrastructure. Cyclone can directly and indirectly affect the public health system. Public health is concerned with the fundamentals of health such as employment,

housing, transport, food and nutrition. Public health is concerned with the fundamentals of health such as employment, housing, transport, food and nutrition. Ideally, the public health sector rather than the medical sector, should be responsible for population health status and for informing and monitoring Government.<sup>1</sup> Public health consequences associated with tropical cyclones include storm related mortality, injury, infectious disease, psychological effects, displacement and homelessness, damage to health-care infrastructure, transformation of the ecosystem, loss of job and livelihood and economic crisis.<sup>2</sup> Now a day's undergoing Climate change poses an overwhelming stressor that will magnify existing health threats. Communicable diseases are common in displaced populations that have poor access to basic needs such as safe water and sanitation, adequate shelter, primary health care services. These conditions are many favorable for disease transmission, must be addressed immediately with the rapid reinstatement of basic services.<sup>3</sup> The health effects associated with the sudden crowding of large numbers of survivors, often with inadequate access to safe water and sanitation facilities, will require planning for both therapeutic and preventive interventions, such as the rapid delivery of safe water and the provision of rehydration materials, antimicrobial agents and measles vaccination materials.<sup>4</sup>

## Objectives

- ❖ The highlight of this article is to assess the public health issues risks for people, including living areas is also affected and communicable diseases may occur in the aftermath of the cyclone.
- ❖ To describe the pre-cyclone warning system, prevention and preparedness methods should be developed effectively.
- ❖ To emphasize and implementation of faster recovery through comprehensive reconstruction and rehabilitation methods it helpful for health system.
- ❖ To give proper medical camp and awareness and health training programmes for the cyclonic situation.

## Methodology

This article describes impact of Thane cyclone, affected public health in the surrounding areas. Cyclone data is collected by the Regional Meteorological Department (RMD), Indian

Meteorological Department (IMD), and World Health Organization annual reports have been used.

### **Study Area**

Cuddalore situated on the eastern Coromandel Coast of the Tamil Nadu. The area has a 3678 sq.km and Population of 26,00,880<sup>5</sup>. It is bounded on the north by Villupuram, on the east by the Bay of Bengal, on the south by Nagapattinam and on the west by Perambalur. The district is drained by Gadilam and Pennaiyar rivers in the north, Vellarand Kollidam River (Coleroon) in south.<sup>6</sup> Cuddalore district is consists of seven taluk viz Cuddalore, Panruti, Kurinjipadi, Chidambaram, Kattumannarkoil, Virudhachalam, Veppur and Tittagudi. Among these Cuddalore and Chidambaram are coastal taluks that lies in the heavy wind and cyclone zone while other five taluks lies in flood zone. Cuddalore has to land slope from west to east and from north to south. The area has been always classified as multi-hazard district. Almost every year, this people face cyclonic storm and coastal inundation particularly October to December. The Cuddalore region is hot and tropical retarded monsoonic climate region.

### **Impact o Thane**

Cyclone is an intense vortex or a whirl in the atmosphere with very strong winds circulating around in it anti-clockwise and in clockwise direction in the Southern Hemisphere.<sup>7</sup> Cyclones are meteorological hazards which are characterized by low atmosphere pressure, spiral rain bands and strong winds of 64 knots or more. Depending on the location, these hazards are named differently in Indian Ocean are called Cyclones, Western Atlantic and Eastern Pacific are called Hurricane. Cyclones may bring heavy rains, strong winds.<sup>8</sup> During the northeast monsoon season, Cuddalore are exposed various cyclone. Including cyclone Nisha(2008), Jal(2010) the coastal district without much damage but the very severe cyclonic storm 'Thane'. The name Thane was recommended by Myanmar.<sup>9</sup> The Thane cyclone was one of the most dangerous cyclones in Indian History. The Government of India was declared it as a 'National Disaster'.<sup>10</sup>

Cyclone Thane started off as a depression over the southeast Bay of Bengal on 25th of December, 2011. After intensifying into a deep depression and then, into a cyclonic storm, it crossed the coast on 30th December bringing with it large scale devastation in Puducherry and

Cuddalore. Thane cyclone was the hit the coast of Cuddalore on 30<sup>th</sup> December 2011. The gale wind speed of 150 kms per hour a major disaster, devastating and destructing Cuddalore, Nagapattinam, Thiruvarur, Thanjavur, Villupuram and Kanchipuram coastal district in Tamil Nadu and Union Territory of Puducherry. The devilish cyclone caused unimaginable and irreparable damage to the people and their properties over the night.<sup>11</sup> Aftermath of the cyclone people faced the various problem of the clean water are the biggest challenges that the affected people face to obtain during to the time. The agricultural inland communities were put into total destruction by losing their chief livelihood means such as vulnerable food crops and trees like coconut groves, mango trees, cashews, paddy, sugarcane, groundnut, plantain, jackfruit etc. Damages to homes, drinking water and power illness have deepened the vulnerability of the surviving home particularly children.<sup>12</sup> The gale forces blew the tides off their roofs, damages wood and plumping work. The road network, communication networks, electricity and water supply pipelines was also severely damaged.<sup>13</sup>

Since all the roads are blocked, basic supplies such as rice, milk, grocery items and vegetables cannot be reached to the affected people. Due to non-availability of Petrol/diesel transportation is at a standstill and buses and Lorries were not on the roads. In India, the Portuguese introduced Cashew nut in Malabar Coast in the 16<sup>th</sup> century. It mainly considered as crop for afforestation in the Tamil Nadu. The entire cashew area of Panruti, Virudhachalam, and Kurichipadi taluk of Cuddalore district were totally devastated. The cyclone severely damaged the power network in Cuddalore and Puducherry and it is estimated that 4500 transformers were damaged in Cuddalore district alone. Major roads were blocked in almost all areas of Cuddalore district for a whole week. During the time, thousands of houses were blew away, crops in thousands of hectares damaged. Peoples suffered without drinking water as there were no electricity connections for months together. Some of the non-governmental agencies were providing food packets as they were not able to get food immediately.<sup>14</sup> Non-governmental organizations, Volunteers of youth, private organizations helped to the people given the relief to the affected places. Kalvikendra is one of the private non -governmental organization taken immediate reliefs carried out to the people. Twenty volunteers from Kalvikendra went to assessing thane cyclone damages in Cuddalore.<sup>15</sup> Medical assistance had been provided injured persons according to their health condition. Surveillance in areas affected by disasters is fundamental to understanding the impact of natural disasters on communicable disease illness

and death. Cyclone after affects public health, especially infectious outbreak, has been documented compare with flood.<sup>16</sup> Gastro, cholera, typhoid and other water borne disease are common during and after floods. Bacteria of these diseases attack the digestive system of the victim.<sup>17</sup> Sometimes, for these stranded in the flood water, availability of clean drinking water is also in issue water borne infections can be avoided. Clean drinking water, clean sanitation and self-cleanliness in the absence of purification methods such as boiling water, simple chlorine tablets can be used to disinfect water.<sup>18</sup>

### **Water-borne diseases**

Cyclone is associated with an increased risk of infection, however this risk is low unless there is significant people migrate one place to another. Of the 8 major cyclones which occurred Cuddalore between 2000 and 2010, only one led to a major leptospirosis (rat fever) disease outbreak in Cuddalore in 17 person. Nilam cyclone is prone infection which can be transmitted directly from contaminated water is leptospirosis, a zoonotic bacterial disease. After the cyclone, the major risk factor for outbreaks associate with flooding is the contamination of drinking-water facilities, and even when this happens, as in rural and urban areas in 2011, the risk of outbreaks can be minimized. The flooding of sewage treatment plants led to the contamination of river water. Despite this risk factor, no significant increase in incidence of diarrheal, typhoid diseases was spread. Water-borne diseases contracted through direct contact with polluted waters, such as wound infections, dermatitis, conjunctivitis, and ear, nose and throat infections.

### **Vector-borne diseases**

After math of cyclone, floods may indirectly lead to an increase in vector-borne diseases through the expansion in the number and range of vector habitats. Standing water caused by heavy rainfall or overflow of rivers can act as breeding sites for mosquitoes, and therefore enhance the potential for exposure of the disaster-affected population and emergency workers to infections such as dengue and malaria. Flooding may firstly flush out mosquito breeding, but it comes back when the waters recede.

### **Injuries**

Injury is the major causes of death and the primary cause of morbidity for cyclones. The cyclone related injuries are lacerations, blunt trauma and puncture wounds. Prominent causes of

death and injury are electrocutions from downed power lines, flying debris and motor vehicle fatalities. Power cuts related to disasters may be disrupting water treatment and supply plants, thereby increasing the risk for waterborne disease. Lack of power may also affect proper functioning of health facilities, including preservation of the vaccine cold chain. Although post cyclone surveillance systems are designed to rapidly detect cases of prone disease. Deaths in Cuddalore occurred mainly due to electrocution, falling of trees and collapse of house or walls. A large number of cows, goats and buffaloes were killed in many villages. Trees, lamp posts and electro poles were uprooted, hand-pumps and bore-wells have been damaged that lead to water scarcity and lack of safe drinking water. Behavioral health effects are among the most long-term and debilitating outcomes of cyclones. During the time, some persons experience president distress, post-traumatic stress disorder and psychiatric outcomes. The National Institute of Mental Health has been quite proactive in seeking to address mental-health issue of those disaster victims affected by cyclone. Team are formed at various level to take public health and preventive medicine measures to control and break down he chain of transmission of infection during the cyclonic situation.

### **Discussion and Result**

Cuddalore Women's Federation contributing to the thane cyclonic time, as a result women, children and the aged were alerted, this saved several lives. But they lost their houses and livelihoods due to heavy wind and rainfall.<sup>19</sup> Without waiting for the government agencies, federation leader's arehelped group of women evacuated some families from low-lying area in singarathaoppu village.<sup>20</sup> The people were struggled three days for basic needs like food, milk and water. The group was created by team. This team are met the affected people, analyze the situation, provided moral strength and confidence especially for women and children and also the team met with local Panchayat leaders and Government officials to jointly evaluate the response and action taken to rehabilitation the displaced communities.<sup>21</sup> Women's federation leaders and group of other women, Cuddalore municipal officials and voluntary organizations helped to distribute drinking water, food materials in village sites. They also insisted with the officials to immediately clear trees and electro posts which were lying on the road. Some of the Government officials went to village for damage assessment. But people did not allow them because they came after three full days. Finally they called higher officials and allowed them on

5<sup>th</sup> day to assess the demand and repair electrical work.<sup>22</sup> Cyclone was indicating that the affect house at kutchha houses. This again indicates the vulnerability of poor during flood more along with their properties during the flood situations.<sup>23</sup> Immediately after rescue operations are over, the rehabilitation process has to be taken up. A quick assessment of damage to houses and eligible for grant and families who have lost their lives.<sup>24</sup>

The Central Government estimates the total damage to be over Rs.4000 corers while the State Government as being over Rs.5000 corers.<sup>25</sup> The cyclone left 48 dead, damaged over two lakh houses, 15,000 hectares of standing paddy crop, 6,000 hectares of sugarcane plantation, 2,000 hectares of cotton plantation and 500 hectares of coconut plantation. The lives of fishermen and farmers were thrown out of gear. Damage to homes, drinking water and power lines has deepened the vulnerability of the surviving women and children. After the devastating Thane cyclone Tamil Nadu Government approved construction of 90,000 concrete houses in rural areas which replace the existing thatched roof huts and has announced relief package to the affected people, as a fully damaged house would able to get Rs.5, 000 and Rs. 2,500 for partially damaged house. The fishermen are eligible to get between Rs. 20,000 to Rs. 1, 00,000 depending on the model of damaged vessels. But the Government is yet to announce any relief for crop damages.<sup>26</sup> The people were lost their house, agriculture crops in the cyclone and it will take nearly 10 years to get yield from cashew nut trees.<sup>27</sup>

### **Conclusion**

Aftermath of the thane cyclone, people was faced different kind of health related issues particularly, the fundamental health system is fully affected in adequate of drinking water, sanitation facilities, medical supplies is not available for people. The Government, Non Governmental Organization, and emergency workers alike should be duly informed to avoid panic and inappropriate disposal of bodies, and to take adequate precautions in handling the crucial situations. During the cyclone, power cuts is the biggest issues may disrupt water treatment and supply plants thereby increasing the risk of water-borne diseases as described above but may also affect proper functioning of health facilities, including cold chain.

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